Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Synthesis of $BiOI@(BiO)_2CO_3$ Facets Coupling Heterostructures toward Efficient Visible-Light Photocatalytic Properties

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Active Species Trapping and Superoxide Radical Quantification Experiments:

For detecting the active species during photocatalytic reactivity, hydroxyl radicals (·OH), the superoxide radical ($O_2^{\bullet-}$), and holes (h^+) were investigated by adding 1.0 mM IPA (a quencher of ·OH), BQ (a quencher of $O_2^{\bullet-}$), and TEOA (a quencher of h^+), respectively. The method was similar to the former photocatalytic activitytest. NBT (2.5×10^{-5} mol/L, exhibiting an absorption maximum at 259 nm) was used to determine the amount of $O_2^{\bullet-}$ generating. The production of $O_2^{\bullet-}$ was quantitatively analyzed by detecting the concentration of NBT with the spectrophotometer. The method was similar to the former photocatalytic activity test, with NBT replacing the RhB.

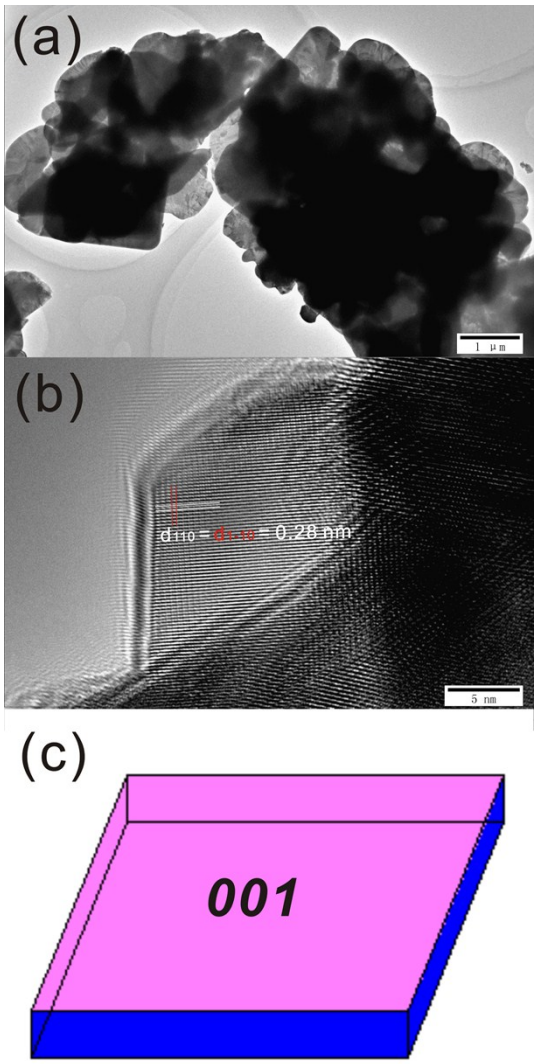

Fig. S1 TEM image, HRTEM image (b) and model (c) and of BiOI.

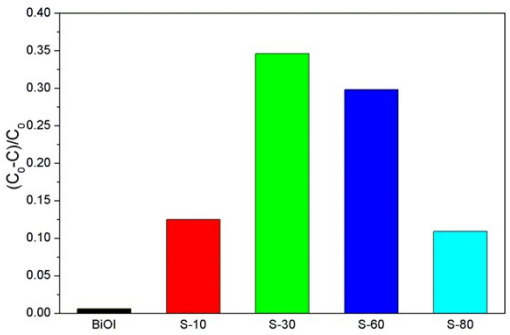

Fig. S2 Transformation percentage of NBT concentration by S-30 with 300 min irradiation.

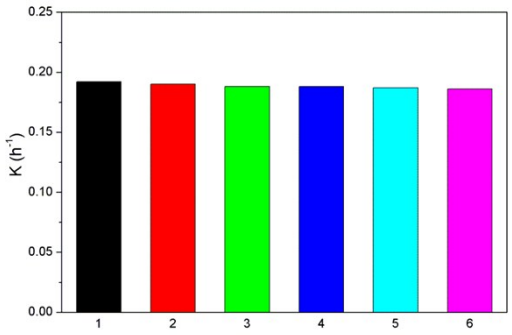

Fig. S3 Catalyst reproducibility of S-60.

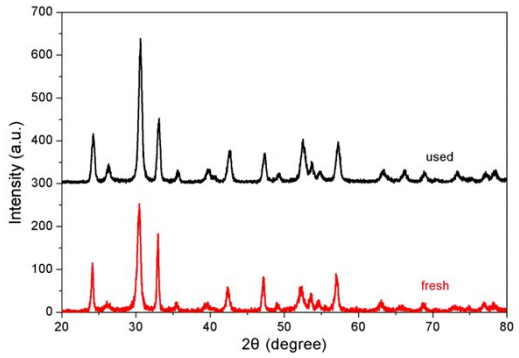

Fig. S4 XRD patterns of fresh and used S-60.

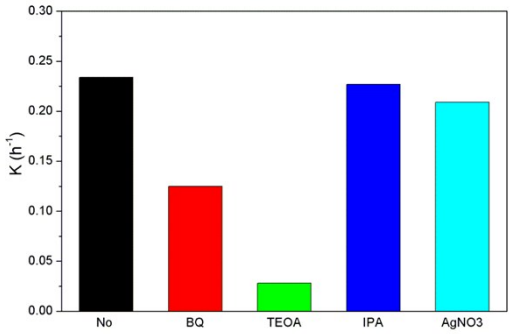

Fig. S5 Trapping experiment of active species during the photocatalytic reaction of S-30.